



Future Solutions
NOW

**Environmental
Protection
Department**

**Lawrence Livermore
National Laboratory**



LLNL's Pollution Prevention Group

Lawrence Livermore National Laboratory (LLNL) is a research facility under contract to the Department of Energy and is located approximately 40 miles southeast of San Francisco. The Laboratory's mission includes conducting research on the environment. The Pollution Prevention Group (PPG) is part of LLNL's Environmental Protection Department, which is responsible for environmental monitoring, regulatory compliance, environmental restoration, and hazardous waste management.

PPG's Mission

PPG's mission is to develop ways to solve the complex environmental problems associated with pollution prevention and industrial ecology. We are dedicated to creating solutions now that will contribute to better environmental practices in the future.

PPG's Goals

Specifically, our goals are to:

- ◆ Minimize all waste generated from LLNL operations (hazardous, mixed, radioactive and non-hazardous waste).
- ◆ Reduce toxic chemical use and toxic emissions.
- ◆ Incorporate pollution prevention (P2) principles into LLNL projects, especially when new projects are being planned.
- ◆ Develop new P2 technologies.
- ◆ Conduct Pollution Prevention Opportunity Assessments (PPOAs) and recommend waste reduction options.



PPG is actively involved in:

Analysis and Assessment

- Waste stream assessments
- Pollution Prevention Opportunity Assessments (PPOAs)
- Risk analysis
- Life Cycle Analysis (LCA)
- Non-hazardous waste analysis.

Performance Tracking and Reporting

- Maintaining a waste and recycling database
- Ensuring adherence to University of California performance measures
- Monitoring chemical procurement and usage.

Awareness, Education, and Outreach Programs

- Technology transfer
- National and international industrial outreach.

Technology Research and Development

- Cleaning technologies
- Metal finishing
- Printed circuit board manufacturing.

Recycling/Reuse

- Chemicals
- Paper and cardboard
- Construction/demolition wastes
- Scrap metal.



Pollution Prevention projects include:



The LLNL Chemical Exchange Warehouse (CHEW). CHEW is operated by LLNL's Environmental Protection Department. Since October 1993, the warehouse has recycled more than 5000 items, saving LLNL \$353,000 in the purchase of new chemicals and disposal of old supplies.



The Contamination Analysis Unit (CAU). LLNL developed CAU sensing technology to measure contamination to the one-nanometer level. This drawing shows a technician using a CAU to detect whether contaminants such as organic residuals still adhere to a plane's surface after it has been cleaned.



Recycling At LLNL

Each year American industry produces millions of tons of solid waste. LLNL is committed to reducing its portion of this waste stream. In 1995, LLNL recycled and reused 25% of its 12,428 tons of solid waste, strengthened its Buy-Recycle programs, and continued to promote employee awareness and involvement in recycling.



Since 1995, LLNL has recycled over 300 tons of cardboard. Approximately 150 tons of cardboard are recycled annually.



Over 1370 tons of metal were recycled in 1995. (This included 1029 tons of tin; 166 tons of brass, iron, and lead; 78 tons of copper; 55 tons of aluminum; and 42 tons of stainless steel.)

Visit our Home Page at:
http://www-erd.llnl.gov/orad/ppg_pages

Pollution
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recycling programs,
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